

# THE ACHIEVEMENT GAP COLORADO'S BIGGEST (EDUCATION) PROBLEM



DONNELL-KAY FOUNDATION



**Center for  
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Policy  
Analysis**

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# TABLE OF CONTENTS

<b>Introduction</b> .....	1
<b>The NAEP Achievement Gap</b> .....	2
The Poverty Gap .....	2
The White-Latino Gap .....	3
The White-Black Gap .....	3
<b>The CSAP Achievement Gap</b> .....	4
The White-Black Gap .....	4
The White-Latino Gap .....	5
Graphs by Grade Level .....	5
<b>The Data Are In: Addressing the Growing Gap</b> .....	7
<b>Narrowing The Gap: Strategies With Promise</b> .....	7
Promising Strategies/Next Steps .....	7
Start Early .....	7
Economic Integration .....	8
Accountability .....	8
Finance .....	8
Intervention in Failing Schools .....	8
Improving Teaching and Learning .....	8
New Schools Done Right .....	9
Choice Done Right .....	9
Urgency and the Need for Broad Leadership .....	9
<b>End Notes</b> .....	10

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The education achievement gap is one of the most serious problems facing our nation's education system and, ultimately, our economy. Lower-income students, often minorities, perform less well on school tests, graduate at lower rates, and are then employed in lower paying jobs. Increasingly, they are unable to compete in the global marketplace.

The achievement gap creates a major issue of equity; it suggests that future generations of low income and minority families may remain mired in poverty. It also threatens to create new inefficiencies, because in coming decades, a steadily increasing percentage of school age children will be racial and ethnic minorities. If they do not achieve at high levels, the economy will suffer.

This crisis appears especially worrisome in Colorado, we face two trends – a growing achievement gap and a surge in low-income, latino students. Education leaders in Colorado need to face up to these challenges and address them comprehensively.

The first step toward solving the problem is understanding its scope. We therefore address two major questions in this report:

- How big is Colorado's achievement gap?
- How has it changed over time?

Because widespread standardized testing is relatively new, we do not have decades of data that would better answer this question over a longer period of time. But, by looking at national and state achievement tests we can better understand the magnitude of the gap over the past decade.

Based on our analysis, a few critical points emerge:

- Colorado's achievement gap is large and persistent – it is bigger than in most other American states and has not decreased in any meaningful way over the past 5 to 10 years;
- National test scores show that the gap in Colorado is equivalent to about two grade levels, that means that on average, Latino and black students are performing about two full grade levels behind the average white student;
- Even in the few grades where the gap is decreasing, the progress is so slow that, at the current rate of improvement, several more generations of Colorado students will leave school with sub-standard skills before we solve this problem.

We recognize that there are no easy solutions to this problem. Disadvantaged students generally come to the K-12 education system already behind their peers; it would take many resources and programs to make up for that shortfall. But, with an adult population that ranks second in the nation for college degrees and ninth in the nation for income levels, it is especially shameful that Colorado continues to have such an inequitable education system.

There are some promising developments underway in various places around the U.S., at the end of this report, we highlight a handful of strategies that together can chip away at the achievement gap more quickly. Previous state efforts, like the Achievement Gap Commission established in 1999, have faded away without any significant successes. This makes it all the more imperative for Colorado's leaders and future leaders to make closing the achievement gap one of their top policy priorities.



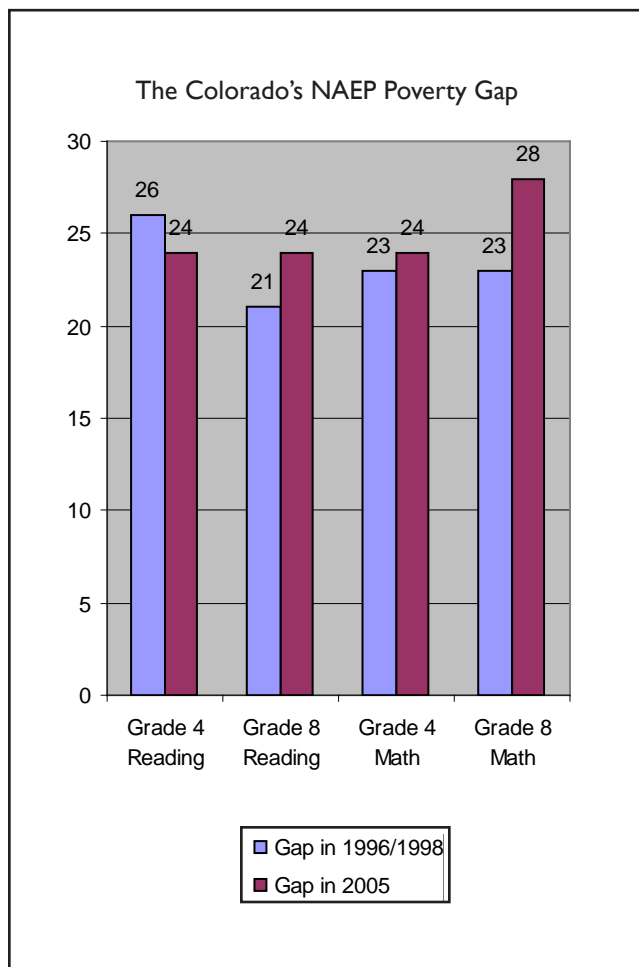
## THE NAEP ACHIEVEMENT GAP

What do national assessments tell us about the Colorado achievement gap? To answer that question, we turn to the NAEP: the National Assessment of Educational Progress.<sup>i</sup> According to NAEP data, in many subjects and grades, achievement gaps have been growing over time.<sup>ii</sup> To put the gaps into perspective, keep in mind that NAEP considers a 10 -11 point gap to be roughly equivalent to one full grade level of learning. This means that the common Colorado gaps of 20-25 points amount to two grade levels, and the gap in some subjects is closer to 3 grade levels.

### The Poverty Gap

NAEP scores show that Colorado's poverty gap is larger than that of most other states. In fact, Colorado ranks 38th out of the 50 states for the poverty achievement gap for 2005. In other words, only 11 states have a larger NAEP test score gap between higher income students and lower income students, as measured by free or reduced school lunch eligibility. Broken down by subject area, Colorado ranks 32nd on the poverty achievement gap in reading and 43rd in math.

Generally, the poverty gap in Colorado has grown over time. NAEP's own analyses indicate that the gap is larger now in grade 8 reading than it was in 1998 and larger now in grade 4 math and grade 8 math than it was in 1996, though somewhat smaller in grade 4 reading than it was in 1998.



### THE NAEP

The NAEP, administered by the National Center for Education Statistics (NCES) in the U.S. Department of Education, provides a gauge of American education performance across states and over time. It was first administered in 1969 and by 1998 virtually all states participated. The most recent rounds of testing – in 2003 and 2005 – included math and reading in grades 4 and 8. The next administration, in 2006, will include science testing.

Unlike the CSAP – which tests nearly every student in the state – the NAEP draws a representative sample of students to provide score estimates. In an average state, 2,500 students in 100 public schools take each test in each grade level. This yields a large enough sample to generate comparisons across states, and, in most cases, to make comparisons across sub-groups of students, such as Latino students, black students, or students living in poverty.

Because NAEP scores are based on a sample, they have a “confidence interval” or “margin of error” around them. For example, if North Dakota scored 253 and Colorado scored 252 on its state NAEP, we may not be able to say with high levels of statistical confidence that North Dakota's score is better than Colorado's. Still, NAEP scores are the best “point estimates” we have of state performance in a given grade in a given year. And while NAEP cautions against comparing the exact value of close state rankings in a given year, changes in the achievement gap over time in a given state are possible due to large sample sizes. These data are provided by NCES on their website.

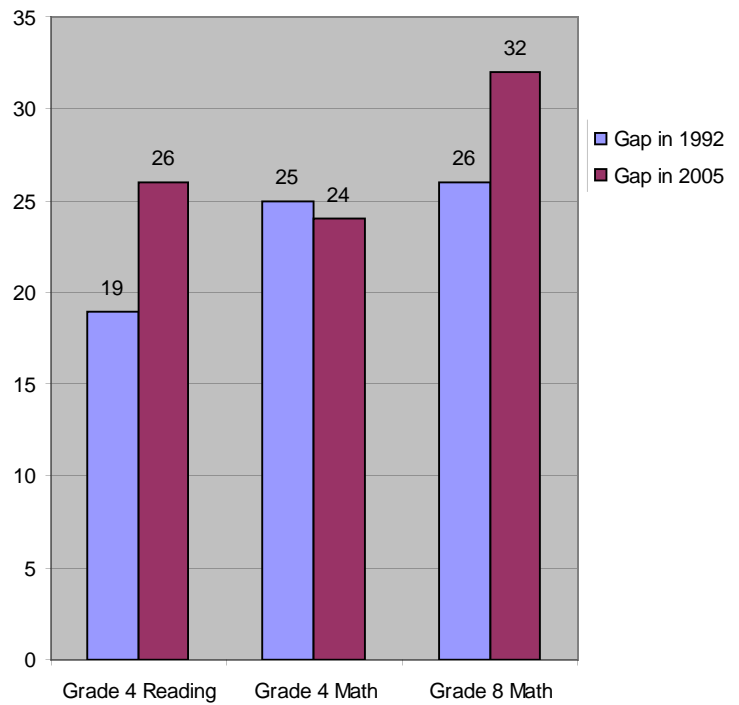
## The White - Latino Gap

As with poverty, the achievement gap in Colorado between white and Latino students is worse than in most other states. Colorado ranks 39th out of 50 states on the composite score difference between white students and Latino students. Broken down by subject area, Colorado ranks 37th for the reading gap and 41st for the math gap.<sup>iii</sup>

Colorado's white-Latino achievement gap is greater now than it was in the early 1990's in grade 4 reading, grade 4 math, and grade 8 math, and the gap is the same for grade 8 reading.



The NAEP White-Latino Gap



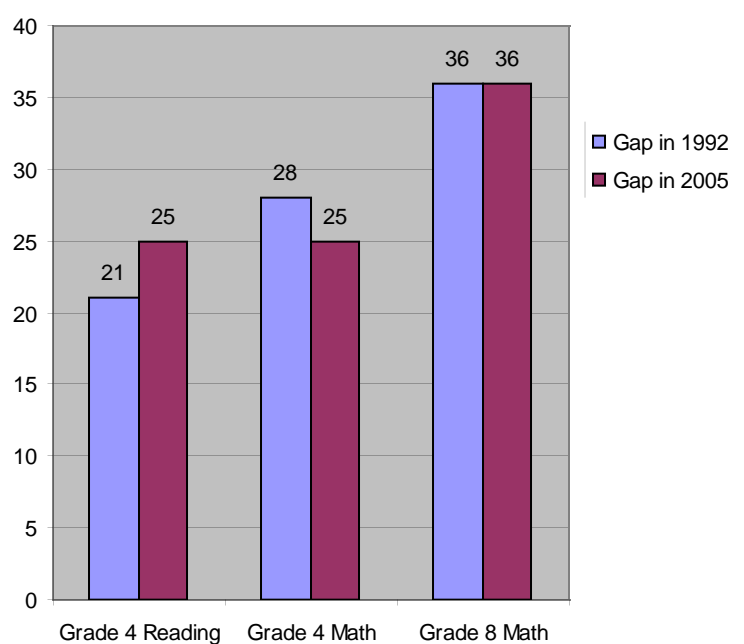
## The White - Black Gap

In relative terms, Colorado fares slightly better on the white-black student gap. The state ranks 21st out of the 50 states for the composite score difference between white students and black students. Broken down by subject areas, Colorado is tied for 10th in reading and tied for 32nd in math.<sup>iv</sup>

The achievement gap between Colorado's white and black students also shows a more positive trend than the other gaps we have examined. The gap has grown in grade 4 reading since the early 1990s, but has shrunk in grade 8 reading and grade 4 math. There was insufficient data to measure the change in the gap in grade 8 math.



The NAEP White-Black Gap



## THE CSAP ACHIEVEMENT GAP

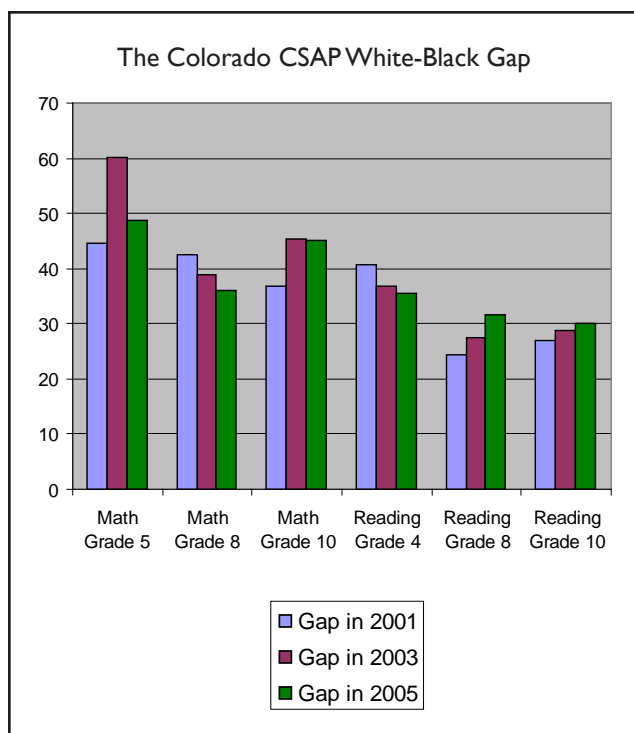
The Colorado Student Assessment Program (CSAP) measures achievement according to our state's content standards. It has been the subject of extensive technical analysis and is widely considered a high-quality standardized test by educators and researchers. Our analysis of CSAP trends, are consistent overall with those from the NAEP: Colorado's achievement gap is large and persistent.

The state reports CSAP results by district and by school in terms of the percentage of students in each of four proficiency categories (Unsatisfactory, Partially Proficient, Proficient, and Advanced). The goal is for all students to achieve grade-level proficiency. Simply measuring the percentage of students at proficiency can be useful in gauging progress towards standards. However, the actual scale scores – which range from about 150 to about 1000, depending on grade and subject – are more precise in computing the achievement gap because they take into account more complete data than proficiency percentages alone.

The scale score data used in these analyses comes from the Colorado Department of Education. These data contained average scores by school for white, black, and Latino students. The data also contained average scores for low-income students, but did not contain scores for non-low-income students, making comparisons impossible. Therefore, our CSAP achievement gap analyses focus only on the achievement gap by ethnicity, rather than by income.

### The White - Black Gap

The gap between black students and white students has decreased slowly in grade 8 math and grade 4 reading, but has remained constant or grown in other grades, according to CSAP scale score data. In grade 10 math, for example, the white-black gap grew from 37 points in 2001 to 45 points in 2005, and the gap in grade 8 reading grew from 24 points in 2001 to 32 points in 2005. In grade 4 reading – the test for which data from the most years are available – the gap has decreased from 41 points in 1999 to 36 points in 2005.



### Scale Scores

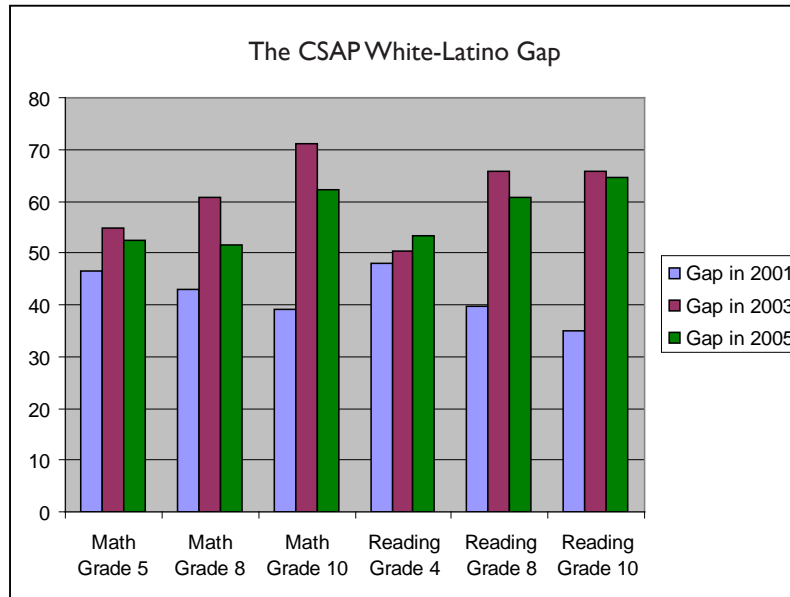
Each year students take the CSAP test in reading, writing, and math and receive a “scale score” on each CSAP test they take. Students are then assigned to one of four performance categories based on their scale score. For example, in fourth grade writing students with scale scores below 414 were “unsatisfactory”; those with scale scores between 414 and 484 were “partially proficient”; those with scale scores between 485 and 553 were “proficient”; and those with scale scores above 553 were “advanced”.

To create the graphs, an average scale score was computed for blacks, Latinos, and whites for each school in the district. These school means were then averaged across all schools in the state. The graphs in this section plot these state means over the past several years. The dotted purple lines superimpose the cutoffs for each proficiency category. For example, the lowest dotted purple line on the grade 4 writing chart indicates the cutoff between Unsatisfactory and Partially Proficient Scores.

Because the state did not make available averages for subgroups of less than 15, some students are not included in the analysis. This missing data could have a systematic effect on our results if students who comprised small minorities in their schools tended to score higher or lower than other students. Although some evidence suggests that black and Latino students tend to score lower than they would elsewhere when they comprise a very large majority, we do not know how students score when they represent a very small minority. Further research, using more complete data, is necessary to investigate this interesting question.

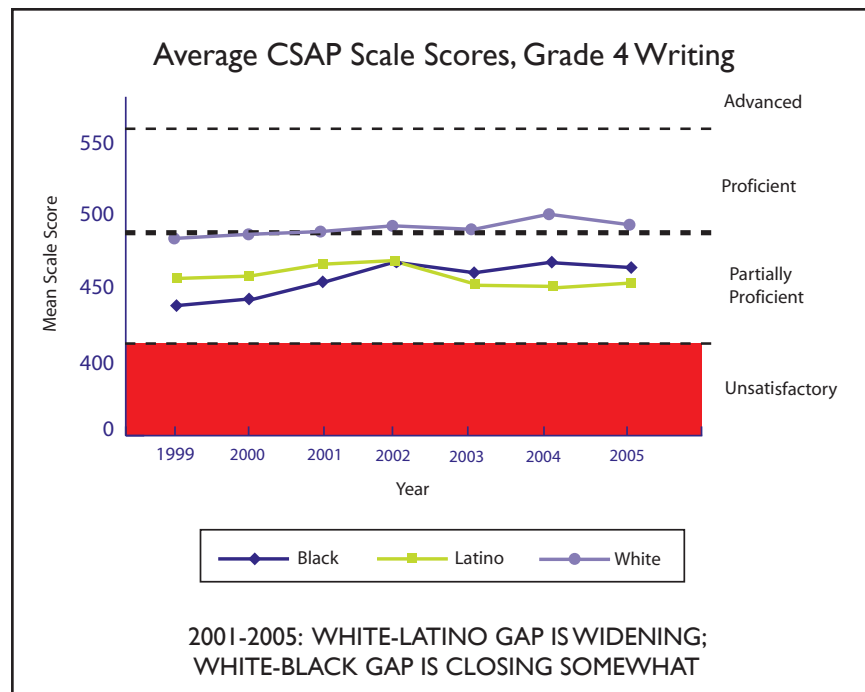
## The White-Latino Gap

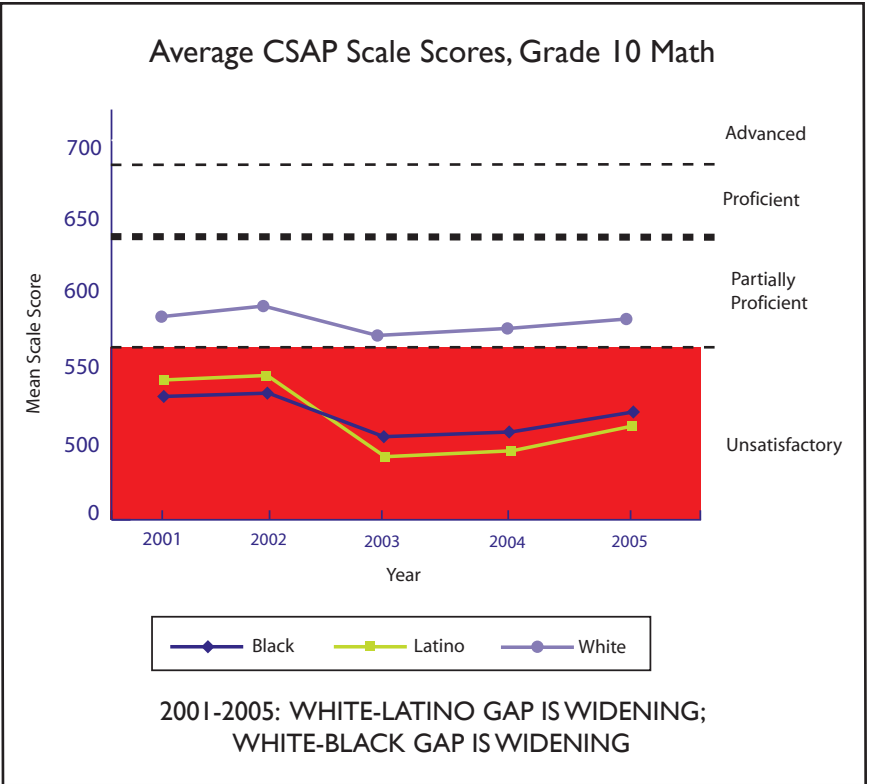
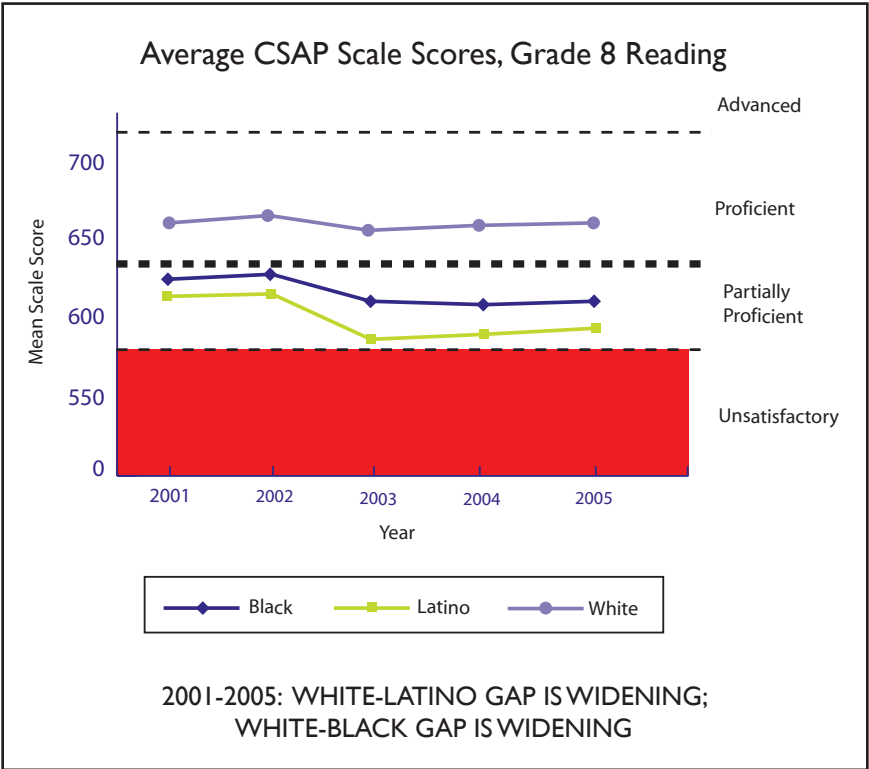
According to CSAP scale score data, the gap between white and Latino students has grown markedly since 2001, especially in the upper grades. In grade 10 math and reading, the gap has nearly doubled since 2001. While the gap has grown overall since 2001, small gains have been made in many subjects between 2003 and 2005, indicating a possible positive trend. (Note that some of the change in the achievement gap between 2002 and 2003 could be due to changes in NCLB requirements, which changed the pool of students who took the CSAP).



## Graphs by Grade Level

The graphs below indicate average performance on CSAP tests in selected grades and subjects. While there have been a few fluctuations in the trends, Colorado's CSAP scores generally have remained flat for several years. The exception is in math, where scores have improved steadily since 2002. However it's worth noting that average scores for blacks and Latinos in 10th grade math are still in the Unsatisfactory range. These graphs also reveal a score dip between 2002 and 2003, one that was steepest for Latino students.<sup>v</sup>







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## *The Gap Is Growing In Most Grades And Subjects*

When we examine the achievement gap over the past three or four years based on CSAP scores, we see that it is widening in most subjects and grades. Between 2002 and 2005, the white-Latino achievement gap grew in every grade, in every subject, on each of the 22 CSAP tests. The black-white achievement gap grew in 12 of 22 grades and subjects, with the most pronounced changes in the higher grades. In grade 7 writing, for example, the gap has grown by more than 15 points, and in grade 9 math by about 12 points.

At the same time, important gains have been made in the lower grades in reading and writing, such as grade 4 reading, where the gap has closed by over 10 points. And if we restrict our analysis to the past two years, there are some more positive trends. For example, over the past two years, the white-black gap has closed in 13 of 23 subjects and the white-Latino gap has closed in 16 of 23 subjects. The gap shrank most in grade 5 reading, grade 9 reading, and grade 9 writing. Still, the decreases in the gap between 2003 and 2005 are quite small, changes varied widely by subject, and the gap actually widened in a number of grades and subjects.

## **THE DATA ARE IN: ADDRESSING THE GROWING GAP**

The overall picture is clear. Colorado has a large and persistent achievement gap. NAEP data demonstrate that Colorado's poverty gap and the white-Latino gap are among the worst of any state in the country. These gaps have not decreased over more than a decade of testing. The white-black gap in Colorado is less severe, and shows some signs of decreasing, but is still substantial. State CSAP data support these results and also demonstrate the problem in more detail, in more subjects and grade levels.

Colorado established an Achievement Gap Commission in 1999 to address this problem, but it has accomplished nothing of note. Political and educational leaders, and new potential leaders, need to clarify how they intend to address this problem, which arguably poses Colorado's biggest future challenge. Not only do we have a moral obligation to educate more of our low-income and minority students at least to a proficient level of basic skills, but Colorado's economic prosperity will diminish if the most rapidly growing segment of its workforce continues to fall below basic proficiency and lags other students by an average of two full grade levels.

Narrowing Colorado's achievement gaps poses a major challenge. Despite a decade of reform, featuring statewide and local initiatives, the performance gaps between students of different backgrounds are wide and persistent. Despite some small improvements in various subjects and grades, the big picture reveals a problem that has yet to be solved.

## **NARROWING THE GAP: 8 STRATEGIES WITH PROMISE**

Documenting a problem in the starkest terms and holding leaders' feet to the fire is a necessary first step. But more aggressive steps must be taken to reduce the gap more quickly. No one believes this will be easy. But it won't happen at all if we do not collectively apply sustained energy and attention.

In this section, we highlight a handful of strategies that show some promise in closing the achievement gap. None is a "silver bullet," but collectively, and creatively implemented, they can work.

### **Strategy 1:**

#### **Start Early**

Focusing resources and effort on younger children has a significant and lasting effect on their academic success. Low-income and minority children should have more access to quality preschool programs and full-day kindergarten. Research and improved accountability systems are providing mounting evidence that supports these early investments in young children. Low-income children are less likely to have been exposed to books and other materials in their homes or to have attended quality preschool programs. When they arrive in public schools behind their more privileged peers, they are already behind. Most often, when students fall behind their peers, they do not catch up.



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## **Strategy 2:**

### **Economic Integration**

One strategy to improve the performance of low-income children is to ensure they attend schools with a diverse population – with a mix of low-income and more affluent students. Research has repeatedly demonstrated the link between a student’s economic background and academic performance. Children from poor families perform worse than those from more affluent backgrounds. Poverty is strongly tied to race and ethnicity, so frequently schools with large proportions of minority students are also predominately low-income. And when low-income children attend schools where almost every other student is also from a poor family, the negative impact on performance is even more pronounced.

Court-ordered busing to achieve integration (along racial lines or income) is not politically or legally viable. But there are other strategies that can help foster economic integration and increased performance. School districts can adjust residential catchment zones to diversify enrollments, and new schools can be created with an explicit mission to foster diversity by attracting a mix of students, including more affluent families.

## **Strategy 3:**

### **Accountability**

The existence of achievement gaps has been common knowledge for decades. The current public debates about closing them have been furthered by new accountability systems that present these gaps in stark detail. But accountability systems could be improved to provide more nuanced details about student performance. For example, renewed accountability systems could:

- do a better job of evaluating the quality of high schools, as older students’ motivation to perform on state tests is questionable and 12th graders are not tested at all;
- provide information on student progress to show how much value a school adds to its students’ education; and
- provide more detailed information about school performance to inform school choice.

## **Strategy 4:**

### **Finance**

Schools should have adequate resources to serve their populations and succeed. Creating new schools or restructuring low-performing schools takes additional resources and some flexibility in how those resources are used. If we are to close the achievement gap, financing must reflect this priority. Through a variety of mechanisms, schools serving large proportions of low-income and minority children will require significantly more resources than schools serving students who are less at-risk.

## **Strategy 5:**

### **Intervention in failing schools**

Schools that persistently fail must not be allowed to continue to flounder. Significant restructuring must incorporate the elements of schools listed below; or alternatively, schools should be closed and entirely new schools should be opened in their place. With information from improving accountability systems, and in the presence of choice options that are thoughtfully managed to better serve at-risk students, communities can insist on high performing schools for every child.

When failing schools are closed, the current students require additional support and interventions on their behalf as well. Students who attend unacceptable schools must have:

1. Transportation to better schools;
2. Counseling and other assistance in choosing other options;
3. Preferential access to higher performing schools that are oversubscribed; and
4. Ongoing mentoring and connections to adults committed to helping them successfully navigate these transitions.



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## **Strategy 6:**

### **Improving Teaching and Learning**

What goes on between a student and his or her teacher is central to learning. This is true in any type of school. Teachers need the knowledge and skills to succeed. Teacher recruitment, training and professional development should be designed and delivered in sustained and systematic manner to incorporate the best thinking on effective practices.

## **Strategy 7:**

### **New schools done right**

Linked to efforts to foster economic integration is the concept of creating new schools. New schools can be created as district-run schools, charters or contract schools. In creating a new school, all the elements can be designed intentionally to foster higher achievement by low-income and minority students, as well as integration. A new school should:

- recruit a powerful school leader;
- articulate its own specific vision or model that will be implemented in the building;
- incorporate best practices regarding instruction;
- have enough time to select, plan and implement this chosen design;
- hire staff that support and understand that approach;
- work with a student body that comes to a new school together so the school can develop in these young people a shared understanding of the schools vision through an explicit culture of high expectations; and
- design and implement admissions practices and design components that foster the economic integration recommended above. Successful examples of new schools that combined their design, location, and mission and enrollment procedures to produce both high performance and economic integration include the Denver School of Science and Technology and the Odyssey Charter School.

## **Strategy 8:**

### **Choice done right**

School choice is a policy tool with many variations and disparate affects. Unfettered choice can empower those with the most resources and privilege to flee failing schools and leave behind less-privileged students without the resources to go elsewhere. Meanwhile, thoughtfully and intentionally managed choice can provide more opportunities to those who are most at-risk of failing in their current setting. The design, placement, and admissions of schools of choice can help foster more options for those who most need something new.

Meanwhile, an infrastructure of targeted support can empower the families that are most poorly served now. This infrastructure should include resources such as transportation, information on school quality, and adequate resources and planning to insure the choice options are quality schools worth choosing.

### **Urgency and the Need for Broad Leadership**

The wide and growing achievement gap in Colorado and the nation is likely to be exacerbated by long-term demographic trends. If Colorado is to boast a strong economy and vibrant communities, all students should be expected and helped to perform at high levels. There is no alternative to finding and implementing strategies that ensure our schools better serve an increasingly diverse population.

We urge people to ask their leaders, their candidates, or their teachers what they will do to help narrow the gap. The strategies and efforts that people pursue are likely to vary depending on the local context and the nature of the achievement gap in different communities. There are, however, a growing set of research-based strategies that show promise for helping to close the gap. These specific reforms are not simple, and the quality and rigor of their implementation takes great care and stewardship. If we can collectively hold all our leaders accountable for furthering these efforts, we can develop the long-term vision and commitment necessary to succeed.

As leaders continue efforts already underway, or launch new initiatives to close the gap, we encourage people to consider the promising reforms outlined in this report. Many of these can be implemented together to create systemic strategies designed to close the gap.

This challenge has taken decades to develop and it won't be solved overnight. There is no single cause of this problem and no single action that will fix it. There are roles for people at all levels of our school systems to play in helping make things better. Given the enormity of the challenge, and the urgency of the tasks, our primary recommendation is that all educators, school leaders, and elected leaders should hold themselves responsible for helping to solve it.

## END NOTES

- <sup>i</sup> Data in this report were provided by the National Center for Education Statistics.
- <sup>ii</sup> Unless specified, results in this section refer to composite NAEP scores, which combine fourth and eighth grade reading and math scores into a single number.
- <sup>iii</sup> About 10 states do not have NAEP scores broken out for Latino students, presumably because of low numbers. Colorado's ranking was extrapolated to a 50 state basis, based upon its ranking among the 40 states. This would only introduce a bias if the small number Latino states had a bigger or smaller gap, on average, than others, but there is no evidence that this the case.
- <sup>iv</sup> Because some states do not report enough data by sub-group, available state rankings are extrapolated based on 50 states.
- <sup>v</sup> In several subjects, average scale scores dipped markedly between 2002 and 2003 for some groups. Part of this decline may be due to NCLB-mandated changes in the population of students who took the test.